



# HIGH FREQUENCY CHIP PACKAGES WITH CONNECTING ELEMENTS

## CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a continuation-in-part of commonly assigned, co-pending international application PCT/US02/27509, filed August 28, 2002, (hereinafter, the "'509 Application") which designates the United States. Said international application claims the benefit of U.S. Provisional Patent Application No. 60/315,408 filed August 28, 2001. Said international application is also a continuation-in-part of U.S. Patent Application No. 10/210,160, filed August 1, 2002, <sup>Now Patent No. 6,856,007</sup> which application also claims the benefit of said U.S. Provisional Patent Application No. 60/315,408. The present application is also a continuation-in-part of said U.S. Patent Application No. 10/210,160, filed August 1, 2002. The present application also claims the benefit of U.S. Provisional Patent Application No. 60/449,673 filed February 25, 2003 and U.S. Provisional Patent Application No. 60/462,170 filed April 11, 2003. The disclosures of all of the aforesaid applications are incorporated by reference herein.

## BACKGROUND OF THE INVENTION

[0002] Semiconductor chips are commonly provided in packages which facilitate handling of the chip during manufacture and during mounting of the chip on an external substrate such as a circuit board or other circuit panel. For example, many semiconductor chips are provided in packages suitable for surface mounting. These packages typically have an external structure with exposed terminals on a bottom face of the structure. The terminals are exposed at the bottom surface of the chip carrier. In the surface mounting operation, the package is placed onto a circuit board so that each terminal on the package is aligned with the corresponding contact pad on the circuit board. Solder or other bonding material is provided between the terminals and the contact pads. The package can be permanently bonded in place by heating the assembly so as to melt or "reflow" the solder or otherwise activate the bonding material. Numerous packages of this